$f(x) = 6^x$

$x = 6^y$ $\quad y = \frac{x}{6}$

$f^{-1}(x) = \frac{x}{6}$

Apr 22-8:14 AM

Compounded n times

5 & 6 $A = P\left(1 + \frac{r}{n}\right)^{(nt)}$

Compounded Continuously

21 $A = Pe^{kt}$

Apr 22-8:21 AM

⑤ $A = 1000\left(1 + \frac{.15}{2}\right)^{(2 \cdot 8)} = \$3180.79$

⑥ $A = 1000\left(1 + \frac{.06}{1}\right)^{(1 \cdot 10)} = \$1790.85$

Apr 22-8:23 AM

⑦ $A(x) = 100e^{-0.01731x}$

$= 100e^{[-0.01731(176)]}$

$= 4.75 \text{ mg}$

Apr 22-8:26 AM

Apr 22-12:45 PM

⑧ $\log_2 64 = 6$

$\log(64)/\log(2) = 6$

$\log_{\boxed{2}} \boxed{64} = 6$

Apr 22-9:36 AM

⑧ $\log_2 64 = 6$

$2^x = 64$

$x = 6$

$\log(64)/\log(2)$

$\log_2 64$

Apr 22-8:27 AM

$3^2 = 9$

$\log_3 9 = 2$

Apr 22-8:28 AM

Apr 22-11:44 AM

$\log_a b = x \iff a^x = b$

9) $\log_3 9 = 2 \iff 3^2 = 9$

10) $\log_7 343 = t \Rightarrow 7^t = 343$

Apr 22-9:37 AM

⑪ $\log_{100} 50$

$\log(50)/\log(100) = .849$

Apr 22-9:38 AM

$\log_a x^2 y z^2$

$\log_a x^2 + \log_a y + \log_a z^2$

$2\log_a x + \log_a y + 2\log_a z$

Apr 22-9:39 AM

$\log(y^2-3y+2) - \log(y^2-1)$

$\log \frac{y^2-3y+2}{y^2-1}$

$\log \frac{(y-2)(y-1)}{(y-1)(y+1)} = \log \frac{y-2}{y+1}$

Apr 22-9:40 AM

$\log_7 343 = t$

$7^t = 343$

Apr 22-8:29 AM

Apr 22-11:49 AM

$\log_{100} 50 = \log(50)/\log(100) = .849$

$\log_a(x^2 y z^2)$

$\log_a x^2 + \log_a y + \log_a z^2$

$2\log_a x + \log_a y + 2\log_a z$

Apr 22-8:30 AM

13) $\log(y^2-3y+2) - \log(y^2-1)$

$\log\left(\frac{y^2-3y+2}{y^2-1}\right)$

$\log \frac{(y-2)(y-1)}{(y-1)(y+1)} = \log\left(\frac{y-2}{y+1}\right)$

Apr 22-8:37 AM

$\frac{2}{5}\log_a x + \frac{1}{7}\log_a y$

$\log_a x^{2/5} + \log_a y^{1/7}$

$\log_a x^{2/5} y^{1/7}$ or $\log_a \sqrt[5]{x^2}\sqrt[7]{y}$

Apr 22-8:39 AM

Apr 22-12:41 PM

$\frac{2}{5}\log_a x + \frac{1}{7}\log_a y$

$\log_a x^{2/5} + \log_a y^{1/7}$

$\log_a x^{2/5} \cdot y^{1/7}$ or $\log_a \sqrt[5]{x^2}\sqrt[7]{y}$

Apr 22-9:44 AM

$\log_a 40$

$\log_a (2 \cdot 5 \cdot 4)$

$\log_a 2 + \log_a 5 + \log_a 4$

$.693 + 1.609 + 1.386$

3.688

Apr 22-9:46 AM

$\ln e^8$

$8 \cdot \ln e$

$8 \cdot 1$

8

$\log_a a^4$

$4 \cdot \log_a a$

$4 \cdot 1$

4

Apr 22-9:47 AM

18) $9^{2x} = 9^{14.8}$

$\frac{2x}{2} = \frac{14.8}{2}$

$x = 7.4$

Apr 22-9:48 AM

19) $250 - 1.78^x = 0$

$\log 250 = \log 1.78^x$

$\frac{\log 250}{\log 1.78} = \frac{x \cdot \log 1.78}{\log 1.78}$

$19.58 = x$

Apr 22-9:49 AM

20) $\log 4^{x} = \log 12$

$\frac{x \cdot \log 4}{\log 4} = \frac{\log 12}{\log 4}$

$x = 1.79$

$4^{x} = 12$

Apr 22-9:51 AM

$A = Pe^{kt}$

$\frac{45{,}300}{8000} = \frac{8000 \cdot e^{.11t}}{8000}$

$\ln 5.6 = \ln e^{.11t}$

$\frac{\ln 5.6}{.11} = \frac{.11t \cdot \ln e}{.11}$

15.76 yrs

Apr 22-9:53 AM

$\log_a(40)$

$\log_a(2 \cdot 5 \cdot 4)$

$\log_a 2 + \log_a 5 + \log_a 4$

$.693 + 1.609 + 1.386$

$\boxed{3.688}$

Apr 22-8:40 AM

Apr 22-9:51 AM

16) $\ln e^{8}$

$8 \cdot \ln e$

$8 \cdot 1$

$\boxed{8}$

Apr 22-8:41 AM

17) $\log_a a^{4}$

$4 \cdot \log_a a$

$4 \cdot 1$

$\boxed{4}$

Apr 22-8:42 AM

18) $9^{2x} = 9^{14.8}$

$\frac{2x}{2} = \frac{14.8}{2}$

$\boxed{x = 7.4}$

Apr 22-8:42 AM

19) $250 - (1.78)^x = 0$

$+1.78^x \quad +1.78^x$

$250 = 1.78^x$

$\frac{\log 250}{\log 1.78} = \frac{x \log 1.78}{\log 1.78}$

$9.58 = x$

Apr 22-8:43 AM

20) $4^x = 12 \longrightarrow \log_4 12 = x$

$\log 4^x = \log 12$

$\frac{x \cdot \log 4}{\log 4} = \frac{\log 12}{\log 4}$

$x = 1.792$

Apr 22-8:45 AM

$A = Pe^{kt}$ $\quad t = 15.76$

$\frac{45{,}300}{8000} = \frac{8000 \cdot e^{.11t}}{8000}$

$\ln 5.66 = \ln e^{.11t}$

$\ln 5.66 = .11t \cdot \ln e$

$\frac{1.7334}{.11} = \frac{.11t}{.11}$

Apr 22-8:46 AM

$N(8) = \frac{1500}{(1 + 20.2 \cdot e^{(-.6 \cdot 8)})}$

1286

Apr 22-8:49 AM

15) $\log_a 40$

$\log_a (2 \cdot 5 \cdot 4)$

$\log_a 2 + \log_a 5 + \log_a 4$

$.693 + 1.609 + 1.386$

3.688

Apr 22-11:09 AM

$K \cdot T = \ln 2$ (doubling Time)

$\frac{.075 \cdot T}{.075} = \frac{\ln 2}{.075}$

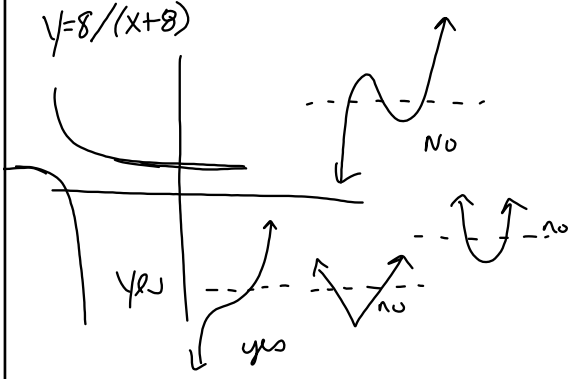
$T = 9$ yrs

Apr 22-11:28 AM

① $\{(7,17),(14,15),(3,19)\}$

Apr 22-11:30 AM

$y = 8/(x+8)$



Apr 22-11:31 AM

16) $\ln e^{8}$

$8 \cdot \ln e$

$8 \cdot 1$

$\boxed{8}$

17) $\log_a a^{4}$

$4 \cdot \log_a a$

$4 \cdot 1$

$\boxed{4}$

Apr 22-11:12 AM

3) $f(x) = 6x$

$y = 6x$

$\frac{x}{6} = \frac{6y}{6}$

$f^{-1}(x) = \frac{x}{6}$

Apr 22-11:33 AM

4) $f(x) = 8x^3 - 6$

$y = 8x^3 - 6$

$x = 8y^3 - 6$

$+6 \quad +6$

$\sqrt[3]{\frac{x+6}{8}} = \sqrt[3]{\frac{8y^3}{8}}$

$f^{-1}(x) = \frac{\sqrt[3]{x+6}}{2}$

Apr 22-11:34 AM

Apr 22-12:50 PM

Apr 22-12:50 PM

18) $9^{2x} = 9^{14.8}$

$\frac{2x}{2} = \frac{14.8}{2}$

$x = 7.4$

Apr 22-11:13 AM

$A = P(1+\frac{r}{n})^{nt}$

Compounded n times

t = time

⑤ $A = 1000(1+\frac{.15}{2})^{(2\cdot 8)}$ $\$3180.79$

⑥ $A = 1000(1+\frac{.06}{1})^{(1\cdot 10)}$ $\$1790.85$

Apr 22-11:37 AM

exp growth rate, doubling Time

$K \cdot T = \ln 2$

$\frac{.075 \cdot T}{.075} = \frac{\ln 2}{.075}$

$T = 9$ yrs

Apr 22-8:50 AM

19) $250 - 1.78^x = 0$

$+1.78^x \quad +1.78^x$

$\log 250 = \log_{1.78} 1.78^x$

$\frac{\log 250}{\log 1.78} = \frac{x \cdot \log 1.78}{\log 1.78}$

$19.58 = x$

Apr 22-11:14 AM

20) $4^x = 12$

$\log 4^x = \log 12$

$x \cdot \log 4 = \log 12$

$\frac{x \cdot \log 4}{\log 4} = \frac{\log 12}{\log 4}$

$x = 1.79$

Apr 22-11:17 AM

21) $A = Pe^{Kt}$ (A: end, P: start, K: rate, t: time)

$\frac{45300}{8000} = \frac{8000e^{.11t}}{8000}$

$\ln 5.6625 = \ln e^{.11t}$

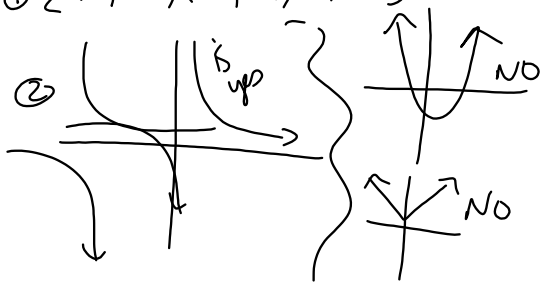
$\ln 5.6625 = .11t \cdot \ln e$

$\frac{1.73}{.11} = \frac{.11t}{.11}$ $t = 15.76$ yrs

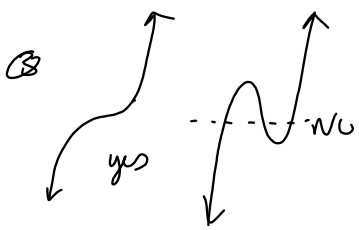
Apr 22-11:18 AM

Apr 22-11:23 AM

① $\{(7,17), (14,15), (3,19)\}$

② 

Apr 22-9:13 AM

③ 

Apr 22-9:19 AM

③ $f(x) = 6x$

$y = 6x$

$\frac{x}{6} = \frac{6y}{6}$

$f^{-1}(x) = \frac{x}{6}$

Apr 22-9:20 AM

④ $f(x) = 8x^3 - 6$

$y = 8x^3 - 6$

$x = 8y^3 - 6$

$+6 \quad +6$

$\sqrt[3]{x+6} = \sqrt[3]{8y^3}$

$\frac{\sqrt[3]{x+6}}{8} = \frac{8y^3}{8}$

$\frac{\sqrt[3]{x+6}}{2} = y$

$f^{-1}(x) = \frac{\sqrt[3]{x+6}}{2}$

Apr 22-9:21 AM

$A = P\left(1 + \frac{r}{n}\right)^{nt}$

⑤ $A = 1000\left(1 + \frac{.15}{2}\right)^{(2 \cdot 8)}$ $3180.79

⑥ $A = 1000\left(1 + \frac{.06}{1}\right)^{(1 \cdot 10)}$ $1790.85

Apr 22-9:26 AM

Apr 22-11:23 AM